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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/216,246	12/18/98	ZANK	A 12580

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ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/216,246	Applicant(s) Zank et al
	Examiner Mehrdad Dastouri	Group Art Unit 2623

☒ Responsive to communication(s) filed on *Dec 14, 2000* .

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *Three* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-16 and 19-41* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) *28-30 and 32-34* is/are allowed.

☒ Claim(s) *1-4, 6-11, 13-16, 19-27, 31, and 35-38* is/are rejected.

☒ Claim(s) *5, 12, and 39-41* is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Response to Amendment

1. Applicants' amendment filed, December 14, 2000, has been entered and made of record.

2. Objection to Oath/Declaration has been withdrawn in view of the submitted substitute Declaration.

3. Objection to disclosure abstract has been withdrawn in view of Applicants' remarks.

4. Objection to Claims 13 and 18 has been withdrawn in view of Claim 13 amendment, and cancellation of Claim 18.

5. Applicants are reminded of proper amendment of the claims. In particular, in rewriting claims, brackets, i.e., "[" and "]" should be used to indicated deletions. This is applicable to the deletion of "(d)" in Claim 1.

6. Applicant's arguments with respect to Claim 3 have been fully considered but they are persuasive. Beatson et al (prior art of record) clearly disclose sampling a customer signature throughout the time of signature at periodic intervals, and electronically storing the signature samples. The coordinates of pen position at a specific time will generate a time history of the signature for comparison purpose with an authentic signature of the customer (Column 12, Lines 35-54).

7. Applicant's arguments with respect to Claims 5, 12 and 28 are persuasive. In view of Applicants' arguments, the rejection of Claims 5, 12 and 28 are expressly withdrawn and the claims are therefore allowable.

8. Applicant's arguments with respect to Claims 1, 16, 19 and 25 have been fully considered but they are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 35 and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Lines 16 and 17 of Claim 35, "each line segments" lacks antecedent basis.

In Line 16 of Claim 36, "the line segments" lacks antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1-4, 6 and 8 are rejected under 35 U.S.C. 102(b) as being unpatentable over Beatson et al (U.S. 5,892,824) in view of Fischer (U.S. 5,936,149).

Regarding Claim 1, Beatson et al disclose a system for managing handwritten signatures, comprising:

(a) a graphic tablet for signaling position coordinates of a stylus during manual movement thereof relative to a writing surface (Figure 2, Signature tablet 64; Column 10, Lines 12-14; Column 17, Lines 25-31);

(b) a clock circuit for periodically initiating position measurements by the graphic tablet at predetermined fixed time intervals (Column 12, Lines 34-43; Figure 5, Oscillator 222; Column 13, Lines 56-57);

(c) a first computer processor electrically interfaced with the tablet, the processor being programmed for receiving a multiplicity of the coordinates during the manual movement of the stylus, and storing respective sets of the coordinates in sequential order as an electronic signature while preserving a time relation between coordinates, the electronic signature forming a time history of the stylus movement (Figure 5, Microprocessor 200; Column 12, Lines 45-53). As depicted in Figure %, Beatson et al generally disclose a clock 224 which provides a square wave signal to digitizer 218, and an oscillator 222 for controlling the digitizer sampling rate. Beatson et al do not explicitly disclose means for verifying the fixed time intervals of the

measurements. Fischer discloses a date/time notary device to time stamp digital signatures comprising means for verifying the fixed time intervals of the measurements (Figure 1, Clocks 12 and 14; Column 4, Lines 28-45. Each of the Clocks 12 and 14 serves as a verification device for proper functioning of the other clock.). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Beatson et al invention according to the teachings of Fischer to verify the fixed time intervals of the measurements because it will improve the accuracy of digital signature time-related information.

Regarding Claim 2, Beatson et al further disclose the system of Claim 1, further comprising

means for comparing the electronic signature with a reference signature (Figure 8F; Column 17, Lines 21-24).

Regarding Claim 3, Beatson et al further disclose the system of Claim 2, wherein the means for comparing further comprises reference memory for storing an electronic counterpart of the reference signature, and a cross-correlator for evaluating a degree of correspondence between respective time histories of the electronic signature and the electronic counterpart of the reference signature (Figure 8F; Column 17, Lines 35-61; Figure 9; Column 18, Lines 7-18. The coordinates of pen position at a specific time will generate a time history of the signature for comparison purpose with an authentic signature of the customer.).

Regarding Claim 4, Beatson et al further disclose the system of claim 3, wherein the reference memory is electronically interfaced with the first computer processor (Figure 5,

Memory Card 66; Column 12, Lines 62-67, Column 13, Lines 1-4. Memory Card 61 is electrically interfaced with Microprocessor 200).

Regarding Claim 6, Fischer further discloses the system of Claim 1, wherein the electronic signature has associated therewith a date and time of the handwritten signature (Figure 3; Column 7, Lines 19-29).

Regarding Claim 8, Fischer further discloses the system of Claim 1, wherein the first computer processor is a digital processor, and the electronic signature is a digital signature (Figure 3; Column 7, Lines 19-29).

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beatson et al (U.S. 5,892,824) further in view of Fischer (U.S. 5,936,149) and Romney et al (U.S. 5,872,848).

Regarding Claim 7, neither Beatson et al nor Fischer disclose the system of Claim 6, wherein the electronic signature has further associated therewith an annotation including at least one of a geographic location, a physical address, and an identification string. Romney et al disclose an apparatus for producing an electronic signature wherein the electronic signature has further associated therewith an identification string (Figure 9-2; Column 10, Lines 4-12. Drivers License Identification Number is the identification string associated with the electronic signature.). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Beatson et al and Fischer combination according to the teachings of Romney et al to associate an annotation including at least one of a geographic location, a physical address, and

an identification string with the handwritten signature because it will improve confidence level for authentication purposes.

14. Claims 9-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beatson et al (U.S. 5,892,824) further in view of Fischer (U.S. 5,936,149) and Howbrook (U.S. 4,240,065).

Regarding Claim 9, neither Beatson et al nor Fischer disclose the system of Claim 1, wherein the graphic tablet includes the clock circuit. Howbrook disclose a position sensing apparatus for signature verification wherein the graphic tablet includes the clock circuit (Figure 7, Column 4, Lines 41-43; Column 5, Lines 14-21, Example I). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Beatson et al and Fischer combination according to the teachings of Howbrook to include the clock circuit in the graphic tablet because it will reduce space requirement and will reduce interconnection hardware.

Regarding Claim 10, Beatson et al, Fischer and Howbrook do not specifically disclose the system of Claim 9, wherein the time intervals are not greater than 20 milliseconds. The Examiner takes official notice that specific values of time intervals in a clock circuit will be selected based on the discretion of designers or implementers. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select the time intervals in a clock circuit not greater than 20 milliseconds because it is a reasonable upper limit for clock time interval based on the writing dynamics in signature verification.

Regarding Claim 11, Beatson et al, Fischer and Howbrook do not specifically disclose the system of Claim 10, wherein the time intervals are between 2 milliseconds and 3 milliseconds. The Examiner takes official notice that specific values of time intervals in a clock circuit will be selected based on the discretion of designers or implementers. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select the time intervals in a clock circuit between 2 milliseconds and 3 milliseconds it is a practical clock time interval based on the writing dynamics in signature verification.

Regarding Claim 13, Fischer further disclose the system of Claim 9, wherein the means for verifying the time intervals comprises

(a) the clock circuit having a certified unalterable time interval (Figure 2, Steps 26 and 28; Column 4, Lines 31-67, Column 5, Lines 1-25). Beatson et al further discloses:

(b) the tablet being implemented for transmitting an encoded certification stamp with the coordinate data (Figure 7, Encryption Block 310; Column 14, Lines 65-67, Column 15, Lines 1-11); and

(c) the computer being programmed for decoding the certification stamp to verify use of the certified time interval (Figure 8; Column 15, Lines 12-42).

15. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beatson et al (U.S. 5,892,824) further in view of Fischer (U.S. 5,936,149) and Kapp et al (U.S. 5,297,202).

Regarding Claim 14, neither Beatson et al nor Fischer disclose the system of of Claim 1, wherein the computer is further programmed for encrypting the time history to a fixed key of arbitrary length. Kapp et al disclose an apparatus for producing a digitized transaction including an encrypted signature comprising a computer programmed for encrypting the time history to a fixed key of arbitrary length (Figure 5, Encryptor 49; Column 5, Lines 45-49). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Beatson et al and Fischer combination according to the teachings of Kapp et al to encrypt the time history to a fixed key of arbitrary length because it will secure transmission of the digitized signature.

Regarding Claim 15, Kapp et al further disclose the method of Claim 14, wherein the computer is programmed for generating the key as a cryptographic hash function or message digest of the document (Column 6, Lines 40-53).

16. Claims 16 and 19-27, 31, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beatson et al (U.S. 5,892,824) further in view of Romney et al (U.S. 5,872,848) and Sudia (U.S. 5,799,086).

Regarding Claim 16, Beatson et al disclose a method for electronically signing a document, comprising the steps of:

(a) progressively capturing a handwritten signature as an ordered sequence of data corresponding to successive coordinates and corresponding timing of stylus movement producing the signature (Figure 5; Column 12, Lines 34-44);

(b) storing the data as an electronic signature (Figure 5; Column 12, Lines 43-44). Beatson et al disclose a method for electronically signing a document (Figure 4C) but do not explicitly disclose (c) electronically binding the electronic signature to a stored counterpart of the document. Romney et al disclose a method for witnessed authentication of electronic documents wherein the electronic signature is electronically bound to a stored counterpart of the document (Figure 2, Step 260; Column 7, Lines 44-57; Figure 6. Digital signature 640 is bound to a copy 620 of original document 400.); and

(d) creating an encryption key by generating a cryptographic hash function or message digest of the stored counterpart of the document (Column 2, Lines 62-65; Column 8, Lines 34-39); and encrypting the electronic signature to the encryption key (Column 3, Lines 3-10; Column 8, Lines 39-45).

Neither Beatson et al nor Romney et al explicitly disclose the further step of identifying stored instances of the encryption key and erasing each such instance. Sudia disclose a cryptographic system with key escrow features comprising identifying stored instances of the encryption key and erasing each such instance (Column 30, Lines 64-67, Column 31, Lines 1-12). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Beatson et al and Romney et al combination according to the teachings of Sudia to include capability of identifying stored instances of the encryption key and erasing each such instance because it is an essential step for maintaining a secure system for authentication of documents.

With regards to Claim 19, arguments analogous to those presented for Claim 16 are applicable to Claim 19.

Regarding Claim 20, Romney et al further disclose the method of Claim 19, wherein the step of storing comprises the further steps of:

(a) encrypting the sequence of data to a fixed key of arbitrary length (Column 2, Lines 62-65); and

(b) storing the encrypted sequence as the electronic signature (Column 7, Lines 9-13).

Regarding Claim 21, Romney et al further disclose the method of Claim 19, wherein the step of storing comprises the further steps of:

(a) determining a date and time at which the handwritten signature was produced (Figure 9-2; Column 10, Lines 6-11);

(b) including counterparts of the date and time with the electronic signature (Figure 9-2; Column 10, Lines 11-12).

Regarding Claim 22, Romney et al further disclose the method of Claim 21, wherein the step of storing comprises the further steps of:

(a) determining a set of document data associated with the document (Figure 9-2; Statements 921-924; Column 10, Lines 4-18);

(b) generating a cryptographic hash data string of arbitrary length from the document data (Column 2, Lines 62-65; Column 11, Lines 1-5); and

(c) encrypting the electronic signature using the cryptographic hash data string (Column 11, Lines 15-20).

Regarding Claim 23, Romney et al further disclose the method of Claim 19, comprising the further step of electronically tying the encrypted signature to the stored counterpart of the document using a device selected from the set consisting of forming a linked directory structure, forming a database, forming a compressed file, and forming a common digital signature packet (Figures 9-1 to 9-3; Column 9, Lines 41-67, Column 10, Lines 1-41. The authenticated electronic document depicted in Figures 9-1 to 9-3 forms a common digital signature packet comprising the encrypted signature and the authenticator identification envelope.).

With regards to Claim 24, arguments analogous to those presented for Claims 17 and 18 are applicable to Claim 24. Romney et al further disclose decrypting the electronic signature using the encryption key, thereby electronically binding the electronic signature to a stored counterpart of the document (Figure 2, Steps 240 and 270; Column 8, Lines 34-39; Column 8, Lines 62-67).

With regards to Claims 25 and 37, arguments analogous to those presented for Claim 19 are applicable to Claims 25 and 37.

Regarding Claim 26, Romney et al further disclose the method of Claim 25, comprising the further steps of:

(a) embedding the signature receipt into the document (Figure 2, Steps 200-220 and 260; Column 7, Lines 44-57); and

(b) embedding the document receipt into the electronic signature, thereby to form a cross-linked binding of the signature with the document (Figures 9-1 to 9-3; Column 9, Lines 37-60)..

Regarding Claim 27, Romney et al further disclose method of Claim 25, wherein the step of producing the receipt counterparts comprises the further steps of:

(a) providing a transportable file medium (Column 7, Lines 13);

(b) copying counterparts of the document receipt and the signature receipt on the file medium (Figure 2, Steps 270-280; Column 9, Lines 30-40); and

(c) delivering the file medium having the receipt counterparts to a signer of the document (Figure 2, Steps 285 and 290; Column 11, Lines 26-47).

Regarding Claim 31, Romney et al further disclose method of Claim 19, comprising the further step of encapsulating the electronic signature in a digital signature (Figure 6; Column 8, Lines 39-45).

With regards to Claim 38, arguments analogous to those presented for Claim 26 are applicable to Claim 38.

Allowable Subject Matter

17. Claims 5, 12 and 39-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 5 of the instant invention recites the system of Claim 2 further comprising means for comparing simultaneously displayed electronic signature and reference signature. The means

include cursors corresponding to each signature being positioned along line segments of the signatures and oriented perpendicular to the line segments, and the processor for verifying authenticity of the signature being further implemented for moving the cursors in response to operator input.

Claim 12 of the instant invention discloses the system of Claim 9, wherein the means for verifying the time intervals comprises the computer being programmed for determining a ratio of a total elapsed time of the measurements and a total number of the measurements, and comparing the ratio with the predetermined interval.

Claims 39-41 of the instant invention recites a method of authenticating a document having signed according to the method of Claim 37, further comprising extracting the signature and document receipt of a recalled transmitted digital signature and recovering the electronic signature; generating new signature and document receipts from the recovered electronic signature; and authenticating the document when the recovered signature and documents receipts matches with the new signature and document receipts.

The features identified in Claims 5, 12 and 39-41, in combination with the other elements of the base claims are neither discussed nor suggested by the prior arts of record.

18. Claims 28-30 and 32-34 are allowed.

Claim 28 of the instant invention discloses a method for verifying electronic signatures comprising simultaneously displaying in locational proximity graphical counterparts of a first and a second signature being stored as sequence of data corresponding to coordinates of a stylus

movements. The method further displays for each signature cursors being positioned along the line segments of the signatures and oriented perpendicular to the line segments, and for each graphic counterparts moving the cursors in response to operator input.

The features identified in Claim 28, in combination with other claim limitations, are neither discussed nor suggested by the prior arts of record.

Claim 32 recites the system for utilization with the method disclosed in Claim 28 and is therefore allowable.

Claims 29 and 30 depend from Claim 28, and are therefore allowable.

Claims 33 and 34 depend from Claim 32, and are therefore allowable.

19. Claims 35 and 36 would be allowable if amended to overcome the rejection under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Claim 35 of the instant invention recites a system for managing handwritten signatures generated as a multiplicity of the coordinates data and the velocity data during manual movement of a stylus relative to a writing surface. The system comprises a computer processor being implemented for determining a stylus velocity associated with each line segment of the signature, and displaying the line segment at widths being proportional to the stylus velocity.

Claim 36 of the instant invention recites a system for managing handwritten signatures generated as a multiplicity of the coordinates data and the pressure data during manual movement of a stylus relative to a writing surface. The system comprises a computer processor being

implemented for determining a stylus pressure associated with each line segment of the signature, and displaying the line segment at widths being proportional to the stylus pressure.

The features identified in Claims 35 and 36, in combination with other claim limitations, are neither discussed nor suggested by the prior arts of record.

Contact Information

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (703) 305-2438. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 4:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au, can be reached at (703)308-6604.

Any response to this action should be mailed to:

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Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703)305-3900.

Mehrdad Dastouri
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Group Art Unit 2623
March 7, 2001

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